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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,731	11/29/2001	Pedro J. Moreno	200302017-1	4088

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IP ADMINISTRATION
LEGAL DEPARTMENT
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EXAMINER

DO, CHAT C

ART UNIT	PAPER NUMBER
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2193

DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,731

Applicant(s)

MORENO, PEDRO J.

Examiner

Chat C. Do

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-31 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is responsive to Amendment filed 01/20/2005.
2. Claims 1-31 are pending in this application. Claims 1, 9, 22, and 29-31 are independent claims. This Office action is made final.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-20 and 22-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al. ("A method for direct audio search with applications to indexing and retrieval").

Re claim 1, Johnson et al. disclose a method of matching (e.g. abstract) sequences of signals from an information stream (e.g. audio stream in abstract) comprising: extracting (e.g. right column page 1427 lines 1-3 from 2.1 Background section) a stream of samples from a subject information stream, each of the extracted samples (e.g. right column page 1427 lines 1-3 from 2.1 Background section which contain audio samples) comprising a portion of the information stream, computing, for each of the samples, a vector quantity indicative of the data in the sample (e.g. right column page 1427 lines 4-8 from

2.1 Background section); correlating (e.g. right column page 1427 line 13 from 2.1 Background section) the vectors to generate a signature indicative of the stream of samples; comparing (e.g. left column page 1427 third paragraph from Introduction section as to compare the result with the cue-audio) the generated signatures to signatures generated from a match stream of samples; and generating, as a result of the comparing, a distance matrix indicative of signatures generated from similar samples (e.g. left column page 1428 second paragraph).

Re claim 2, Johnson et al. further disclose a correlating includes generating the signature distinctively from signatures generated for other streams of samples (e.g. abstract wherein each segment has unique signature).

Re claim 3, Johnson et al. further disclose the correlating generates a covariance matrix as a signature indicative of the stream of samples (e.g. left column page 1428 in Search Method section).

Re claim 4, Johnson et al. further disclose arranging the samples into a plurality of segments (e.g. left column page 1428 second paragraph).

Re claim 5, Johnson et al. further disclose each of the extracted samples comprises a predetermined internal of the subject information stream (e.g. right column page 1427 first paragraph in Background section).

Re claim 6, Johnson et al. further disclose the match stream is the extracted stream of samples itself (e.g. left column page 1428 fourth paragraph in Search Method section).

Re claim 7, Johnson et al. further disclose the match stream is indicative of a predetermined sequence of samples stored from previously transmitted samples (e.g. left column in page 1428 second paragraph).

Re claim 8, Johnson et al. further disclose signatures corresponding to the predetermined sequence are stored in a library (e.g. abstract inherently).

Re claim 9, Johnson et al. disclose a method of detecting repetitions in an information stream (abstract) comprising: providing (right column page 1427 first paragraph under Background section) an information stream of multimedia data corresponding to a transmitted signal; extracting (right column page 1427 first paragraph under Background section lines 2-3) a plurality of samples from the information stream; accumulating (right column page 1427 first paragraph under Background section lines 5-8) the samples into segments comprising a predetermined interval of the transmitted signal; generating (right column page 1427 first paragraph under Background section lines 9-10) respective vectors indicative of the samples in each of the segments; for each segment, correlating (right column page 1427 first paragraph under Background section line 13) the vectors in the segments to generate a respective covariance matrix corresponding to the segment; aggregating (right column in page 1428 under Search Method section) each of the covariance matrices corresponding to the segments into a sequence of covariance matrices; and comparing (right column in page 1428 second paragraph) each of the covariance matrices in the

sequence with each other covariance matrix in the sequence to generate a distance matrix.

Re claim 10, Johnson et al. further disclose generating the distance matrix further comprises generating a distance value, indicative of the similarity between the distance matrices, as a result of the comparing (right column in page 1428 second paragraph).

Re claim 11, Johnson et al. further disclose traversing the distance matrix to determine similar sequences of covariance matrices (right column in page 1428 second paragraph).

Re claim 12, Johnson et al. further disclose determining similar sequences further comprises searching for diagonals of similar distance values (right column in page 1428 third paragraph under Search Method section).

Re claim 13, Johnson et al. further disclose searching for diagonals of similar distance values includes searching for distance values within a predetermined threshold (right column in page 1428 under Search Method section).

Re claim 14, Johnson et al. further disclose the covariance matrices correspond to a multidimensional space and comparing the covariance matrices further comprises: determining, for each of the covariance matrices, a location in the multidimensional space (D-dimensions vector space); and computing a distance value indicative of the distance between the covariance matrices in the

multidimensional space (right column in page 1428 under Search Method section).

Re claim 15, Johnson et al. further disclose ranking the distance values and storing the ranking in the distance matrix (right column second paragraph page 1428).

Re claim 16, Johnson et al. further disclose a matching sequence is determined by similar diagonal values in the distance matrix (right column in page 1428 third paragraph under Search Method section).

Re claim 17, Johnson et al. further disclose the similar diagonal values form a contiguous sequence for a predetermined number of locations in the distance matrix (right column in page 1428 third paragraph under Search Method section).

Re claim 18, Johnson et al. further disclose the multidimensional space further comprises at least dimensions (D-dimension vector space in right column third paragraph under the Search Method section page 1428).

Re claim 19, Johnson et al. further disclose the information stream further comprises streaming audio (abstract with audio) or video.

Re claim 20, Johnson et al. further disclose traversing the distance matrix to determine if a similar distance value sequence is found (left column page 1427 third paragraph under Introduction section); querying, when a similar distance value sequence is found in the distance matrix, a library of previously found distance value sequences; storing the distance value sequence in the library if a

match is not found as a result of the querying (right column page 1427 second paragraph lines 10-17); and updating, if a match is found as a result of the querying, a timestamp corresponding to the matching distance value sequence in the library (right column page 1427 second paragraph).

Re claim 22, it is a system claim of claim 1. Thus, claim 22 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 23, it is a system claim of claim 2. Thus, claim 23 is also rejected under the same rationale as cited in the rejection of rejected claim 2.

Re claim 24, it is a system claim of claim 3. Thus, claim 24 is also rejected under the same rationale as cited in the rejection of rejected claim 3.

Re claim 25, it is a system claim of claim 5. Thus, claim 25 is also rejected under the same rationale as cited in the rejection of rejected claim 5.

Re claim 26, it is a system claim of claim 6. Thus, claim 26 is also rejected under the same rationale as cited in the rejection of rejected claim 6.

Re claim 27, it is a system claim of claim 7. Thus, claim 27 is also rejected under the same rationale as cited in the rejection of rejected claim 7.

Re claim 28, it is a system claim of claim 8. Thus, claim 28 is also rejected under the same rationale as cited in the rejection of rejected claim 8.

Re claim 29, it is a computer product claim of claim 1. Thus, claim 29 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 30, it is a computer data signal including program code claim of claim 1. Thus, claim 30 is also rejected under the same rationale as cited in the rejection of rejected claim 1.

Re claim 31, it is a system claim of claim 9. Thus, claim 31 is also rejected under the same rationale as cited in the rejection of rejected claim 9.

Allowable Subject Matter

5. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 01/20/2005 have been fully considered but they are not persuasive.

a. The applicant argues in page 8 last paragraph for claim 1 that the cited reference by Johnson et al. does not disclose the generation of a distance matrix as cited in the claimed invention.

The examiner respectfully submits that the cited reference by Johnson et al. clearly disclose the generation of a distance matrix in the left column in page 1428 (or 2) wherein the distance matrix is the distance metric which is generated at the end to calculate the similarity or likeness between segments/frames.

b. The applicant argues in page 9 first two paragraphs for claim 9 that the cited reference does not disclose the aggregating covariance matrices of an information stream into a sequence of covariance matrices and comparing each of the covariance matrices in the sequence with each other covariance matrix in the sequence to generate a distance matrix.

The examiner respectfully submits that the cited reference does disclose the aggregating covariance matrices of an information stream into a sequence of covariance matrices and comparing each of the covariance matrices in the sequence with each other covariance matrix in the sequence to generate a distance matrix in page 1428 (or 2) under section 2.2 search method wherein the long portion of target audio is divided into many small portions of same length and follow the AHS method to find the match.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

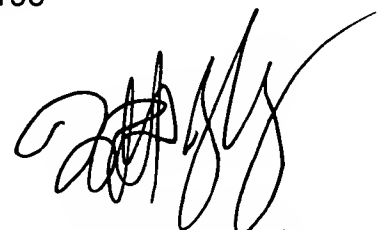
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on 7:00AM to 5:00PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C Do
Examiner
Art Unit 2193

April 19, 2005



TODD INGBERG
PRIMARY EXAMINER